

## **ADVISING WORKSHEET**

# BACHELOR OF SCIENCE DEGREE MAJOR IN CHEMISTRY TEACHING LICENSURE OPTION General Bulletin 2017-2018

TRANSFER	INSTITUTI	ON(S):	

Montana State University Billings Advising & Career Services Phone: 406-657-2240 Fax: 406-657-2302 advising@msubillings.edu www.msubillings.edu/advise/

Name	 	 	
Student ID#_		 	

### GENERAL EDUCATION REQUIREMENTS - SEE ATTACHED PAGE FOR SPECIFIC COURSES

General Education Category	Course #	Credits	Grade	Semester	Equivalent
Category I: Global Academic Skills (9 credits) # A. Mathematics (3 credits)  STAT 216 or M 171 – Major Requirements					
B. English (3 credits) #	WRIT 101				
C. Communication & Information Literacy (3 credits) #	COMX 111 or 115				
Category II: Natural Sciences (7 credits) # 2 lectures (6 credits) & 1 lab (1 credit) (1 life science & 1 physical science & 1 lab)	BIOB 160				
	BIOB 161				
CHMY 141 – Major Requirements					
Category III: Social Sciences and History (6 credits) A. Social Science (3 credits)	EDU 105				
B. History (3 credits) #	HSTA 101 or 102				
Category IV: Cultural Diversity (3 credits) #	NASX 105 or 205				
Category V: Arts & Humanities (6 credits) A. Fine Arts (3 credits)					
B. Humanities (3 credits)					

A minimum grade of "C" required in all General Education courses. #= Required for Admission to the Educator Preparation Program

Reviewed:		

# GENERAL EDUCATION REQUIREMENTS

CATEGO	rv I. (	GLOBAL ACADEMIC SKILLS	9 credits	CATEGO	DRV III	SOCIAL SCIENCES AND HISTORY 6 CI	REDITS
		uired to take one course from each sub				uired to take one course from each subcate	
		- Mathematics	3 credits				credits
M	105	Contemporary Mathematics	3	ANTY	217	Physical Anthropology & Archeology	3
M	114	Extended Technical Mathematics	3	BGEN	105	Introduction to Business	3
M	121	College Algebra	3	COMX	106	Communicating in a Dynamic Workplac	
M	122	College Trigonometry	3	ECNS	201	Principles of Microeconomics	3
M	130	Mathematics for Elementary Teacher		ECNS	202	Principles of Macroeconomics	3
M	143	Finite Mathematics	4	EDU	105	Education and Democracy	3
M	161	Survey of Calculus	3	GPHY	141	Geography of World Regions	3
M	171	Calculus I	4	HTH	110	Personal Health and Wellness	3
STAT	141	Introduction to Statistical Concepts	3	PSCI	210	Introduction to American Government	3
STAT	216	Introduction to Statistics	4	PSCI	220	Introduction to Comparative Government	
				PSYX	100	Introduction to Psychology	3
Subcate	gory B	- English	3 credits	PSYX	231	Human Relations	3
WRIT	101	College Writing I	3	SOCI	101	Introduction to Sociology	3
WRIT	121	Introduction to Technical Writing	3	SOCI	201	Social Problems	3
WRIT	122	Introduction to Business Writing	3				
WRIT	201	College Writing II	3	Subcate	gory B	- History 3	credits
WRIT	220	Business & Professional Writing	3	HSTA	101	American History I	3
WRIT	221	Intermediate Technical Writing	3	OR			
				HSTA	102	American History II	3
Subcate	gory C-	Communication & Information Litera	•	-			
COMX	111	Introduction to Public Speaking	3	CATEGO	ORY IV:	CULTURAL DIVERSITY 3 of	credits
OR				NASX	105	Introduction to Native American Studie	es 3
COMX	115	Introduction to Interpersonal Comm	nunication3	OR	100	21111 0411011 10 1 14111 0 1211101 10411 200410	.5
				NASX	205	Native Americans in Contemporary Soc	cietv 3
CATEGO	ORY II:	NATURAL SCIENCES 6 cr. lecture	& 1 cr. lab			<b>. .</b>	
Students	are req	uired to take one course from each sub	category and	CATEGO	DRY V:	ARTS & HUMANITIES 6	credits
at least o	one corr	esponding lab <u>or</u> Integrated Sciences					<b>er e ur e</b>
		esperiarios tae <u>er</u> mices area seremees		Students	are ree	mired to take one course from each subcate	agory
Subcate			3-4 credits			uired to take one course from each subcate	
Subcate BIOB			3-4 credits	Subcate	gory A	- Fine Arts 3	credits
	gory A	- Life Sciences		Subcate ARTZ	<b>gory A</b> 101	- Fine Arts Art Fundamentals	credits 3
BIOB	<b>gory A</b> 101	- Life Sciences Discover Biology	3 1	Subcate ARTZ ARTZ	101 105	<ul><li>- Fine Arts</li><li>Art Fundamentals</li><li>Visual Language-Drawing</li></ul>	credits 3 3
BIOB BIOB	gory A 101 102	– <b>Life Sciences</b> Discover Biology Discover Biology Lab	3 1 Health 3	Subcate ARTZ ARTZ ARTZ	101 105 131	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors	credits 3 3 3
BIOB BIOB	gory A 101 102 121	<ul> <li>Life Sciences         Discover Biology             Discover Biology Lab         Fundamentals of Biology for Allied         Fund of Biology: Evolution, Ecology             Biodiversity     </li> </ul>	3 1 Health 3 7, and 3	Subcate ARTZ ARTZ ARTZ CRWR	101 105 131 240	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop	3 3 3 3 3
BIOB BIOB	gory A 101 102 121 122 123	- Life Sciences Discover Biology Discover Biology Lab Fundamentals of Biology for Allied Fund of Biology: Evolution, Ecology	3 1 Health 3 3 4, and 3 3	Subcate ARTZ ARTZ ARTZ CRWR FILM	101 105 131 240 160	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
BIOB BIOB BIOB	101 102 121 122	<ul> <li>Life Sciences         Discover Biology             Discover Biology Lab         Fundamentals of Biology for Allied             Fund of Biology: Evolution, Ecology             Biodiversity      </li> <li>Fund of Biology: The Nature of Nutr         Principles of Living Systems     </li> </ul>	3 1 Health 3 , and 3 ; ition 3 3	Subcate ARTZ ARTZ ARTZ CRWR FILM LIT	101 105 131 240 160 270	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema Film & Literature	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
BIOB BIOB BIOB BIOB	gory A 101 102 121 122 123	<ul> <li>Life Sciences         Discover Biology             Discover Biology Lab         Fundamentals of Biology for Allied         Fund of Biology: Evolution, Ecology             Biodiversity     </li> <li>Fund of Biology: The Nature of Nutrel</li> </ul>	3 1 Health 3 3 4, and 3 3	Subcate ARTZ ARTZ ARTZ ARTZ CRWR FILM LIT MART	101 105 131 240 160 270 260	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema Film & Literature Computer Presentation and Animation	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
BIOB BIOB BIOB BIOB	gory A 101 102 121 122 123 160	- Life Sciences Discover Biology Discover Biology Lab Fundamentals of Biology for Allied Fund of Biology: Evolution, Ecology Biodiversity Fund of Biology: The Nature of Nutr Principles of Living Systems Principles of Living Systems Lab	3 1 Health 3 7, and 3 itition 3 3 1	Subcate ARTZ ARTZ ARTZ CRWR FILM LIT MART MUSI	101 105 131 240 160 270 260 101	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema Film & Literature Computer Presentation and Animation Enjoyment of Music	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
BIOB BIOB BIOB BIOB BIOB BIOB Subcate	gory A 101 102 121 122 123 160 161 gory B	<ul> <li>Life Sciences         <ul> <li>Discover Biology</li> <li>Discover Biology Lab</li> </ul> </li> <li>Fundamentals of Biology for Allied Fund of Biology: Evolution, Ecology         <ul> <li>Biodiversity</li> </ul> </li> <li>Fund of Biology: The Nature of Nutrest Principles of Living Systems         <ul> <li>Principles of Living Systems Lab</li> </ul> </li> <li>Physical Sciences</li> </ul>	3 1 Health 3 7, and 3 ition 3 3 1 3-4 credits	Subcate ARTZ ARTZ ARTZ CRWR FILM LIT MART MUSI MUSI	101 105 131 240 160 270 260 101	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema Film & Literature Computer Presentation and Animation Enjoyment of Music Band: MSUB Symphonic	3 3 3 3 3 3 3 1
BIOB BIOB BIOB BIOB BIOB BIOB Subcate ASTR	101 102 121 122 123 160 161	- Life Sciences Discover Biology Discover Biology Lab Fundamentals of Biology for Allied Fund of Biology: Evolution, Ecology Biodiversity Fund of Biology: The Nature of Nutr Principles of Living Systems Principles of Living Systems Lab  - Physical Sciences Introduction to Astronomy	3 1 Health 3 7, and 3 ition 3 3 1 3-4 credits 3	Subcate ARTZ ARTZ ARTZ CRWR FILM LIT MART MUSI MUSI MUSI	101 105 131 240 160 270 260 101 114 131	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema Film & Literature Computer Presentation and Animation Enjoyment of Music Band: MSUB Symphonic Jazz Ensemble I: MSUB	3 3 3 3 3 3 3 3 1 1 1
BIOB BIOB BIOB BIOB BIOB BIOB Subcate ASTR ASTR	101 102 121 122 123 160 161 gory B	- Life Sciences Discover Biology Discover Biology Lab Fundamentals of Biology for Allied Fund of Biology: Evolution, Ecology Biodiversity Fund of Biology: The Nature of Nutr Principles of Living Systems Principles of Living Systems Lab  - Physical Sciences Introduction to Astronomy Introduction to Astronomy Lab	3 1 Health 3 7, and 3 7ition 3 3 1 3-4 credits 3	Subcate ARTZ ARTZ ARTZ CRWR FILM LIT MART MUSI MUSI MUSI MUSI	101 105 131 240 160 270 260 101 114 131	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema Film & Literature Computer Presentation and Animation Enjoyment of Music Band: MSUB Symphonic Jazz Ensemble I: MSUB Choral Ensemble: University Chorus	3 3 3 3 3 3 3 1 1 1 1
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BIOB BIOB BIOB BIOB BIOB BIOB Subcate ASTR ASTR CHMY CHMY	101 102 121 122 123 160 161 gory B 110 111 121 122 141	- Life Sciences Discover Biology Discover Biology Lab Fundamentals of Biology for Allied Fund of Biology: Evolution, Ecology Biodiversity Fund of Biology: The Nature of Nutr Principles of Living Systems Principles of Living Systems Lab  - Physical Sciences Introduction to Astronomy Introduction to General Chemistry Introduction to General Chemistry L College Chemistry I	3 1 Health 3 7, and 3 7 ition 3 3 1  3-4 credits 3 1 3 ab 1 3	Subcate ARTZ ARTZ ARTZ CRWR FILM LIT MART MUSI MUSI MUSI MUSI PHOT	101 105 131 240 160 270 260 101 114 131 147 154	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema Film & Literature Computer Presentation and Animation Enjoyment of Music Band: MSUB Symphonic Jazz Ensemble I: MSUB Choral Ensemble: University Chorus Exploring Digital Photography	3 3 3 3 3 3 3 1 1 1 1 3 3
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BIOB BIOB BIOB BIOB BIOB BIOB Subcate ASTR ASTR CHMY CHMY CHMY CHMY GEO GEO GPHY GPHY PHSX PHSX	gory A 101 102 121 122 123 160 161 gory B 110 111 121 122 141 142 101 102 111 112 103 104	- Life Sciences Discover Biology Discover Biology Lab Fundamentals of Biology for Allied Fund of Biology: Evolution, Ecology Biodiversity Fund of Biology: The Nature of Nutr Principles of Living Systems Principles of Living Systems Principles of Living Systems Lab  - Physical Sciences Introduction to Astronomy Introduction to General Chemistry Introduction to General Chemistry L College Chemistry I College Chemistry I Introduction to Physical Geology Introduction to Physical Geology Introduction to Physical Geography Our Physical World Our Physical World Our Physical World	3 1 Health 3 /, and 3 3 ition 3 3 I  3-4 credits 3 ab 1 3 boratory 1 3 Lab 1 3 1	Subcate ARTZ ARTZ ARTZ CRWR FILM LIT MART MUSI MUSI MUSI MUSI PHOT THTR THTR  Subcate ARTH HONR LIT LIT	101 105 131 240 160 270 260 101 114 131 147 154 101 120 150 111 110 240	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema Film & Literature Computer Presentation and Animation Enjoyment of Music Band: MSUB Symphonic Jazz Ensemble I: MSUB Choral Ensemble: University Chorus Exploring Digital Photography Introduction to Theatre Introduction to Acting I  - Humanities Introduction to Art History Perspectives and Understanding Introduction to Literature The Bible as Literature	credits  3 3 3 3 3 3 3 1 1 1 1 3 3 3 credits 3 3 3 3
BIOB BIOB BIOB BIOB BIOB BIOB Subcate ASTR ASTR CHMY CHMY CHMY CHMY GEO GEO GPHY GPHY PHSX PHSX PHSX	gory A 101 102 121 122 123 160 161 gory B 110 111 121 122 141 142 101 102 111 112 103 104 205	- Life Sciences Discover Biology Discover Biology Lab Fundamentals of Biology for Allied Fund of Biology: Evolution, Ecology Biodiversity Fund of Biology: The Nature of Nutr Principles of Living Systems Principles of Living Systems Principles of Living Systems Lab  - Physical Sciences Introduction to Astronomy Introduction to General Chemistry Introduction to General Chemistry L College Chemistry I College Chemistry Laboratory I Introduction to Physical Geology Introduction to Physical Geology Introduction to Physical Geography Our Physical World Our Physical World College Physics I	3 1 Health 3 /, and 3 3 ition 3 3 I  3-4 credits 3 ab 1 3 boratory 1 3 Lab 1 3 1 3	Subcate ARTZ ARTZ ARTZ CRWR FILM LIT MART MUSI MUSI MUSI MUSI PHOT THTR THTR  Subcate ARTH HONR LIT LIT LIT PHL	200ry A 101 105 131 240 160 270 260 101 114 131 147 154 101 120 200ry B 150 111 110 240 110	- Fine Arts Art Fundamentals Visual Language-Drawing Ceramics for Non-majors Intro Creative Writing Workshop Introduction to World Cinema Film & Literature Computer Presentation and Animation Enjoyment of Music Band: MSUB Symphonic Jazz Ensemble I: MSUB Choral Ensemble I: MSUB Choral Ensemble: University Chorus Exploring Digital Photography Introduction to Theatre Introduction to Acting I  - Humanities 3 Introduction to Art History Perspectives and Understanding Introduction to Literature The Bible as Literature Introduction to Ethics Philosophies of Life	credits  3 3 3 3 3 3 3 3 1 1 1 1 3 3 3 credits 3 3 3 3 3
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3, 1, 3, 1

SCIN 101, 102, 103, 104 Integrated Sciences

		Course	Credits	Grade	Semester	Equivalent
Drofossion	al Educatio	A minimum grade of C or better is requir	ed in all	major co	ursework	
*#EDU	105	Education and Democracy	3			
^#EDU	220/ 220L	Human Growth and Development/ Lab (45 hour practicum required)	3			
#EDU	221	Educational Psychology and Measurement	3			
^#EDSP	204	Introduction to Teaching Exceptional Learners (15 hour practicum required)	3			
#HTH	412	Alcohol, Tobacco and Other Drug Awareness (ATOD)	1			
EDU	333	Reading and Writing Across the Curriculum	3			
EDU	380	Introduction to Curriculum Planning/Practice	2			
EDU	354	Secondary Junior Field	2			
EDU	397G	Methods: 5-12 Science	2			
EDU	406	Philosophical, Legal & Ethical Issues in Education	3			
EDU	495C	Student Teaching: 5-12	9			
CI : 1	ъ .	Professional Core Total	34	#Required	l for Admission to	o the Educator Preparation Progra
*CHMY	Requirem 141	College Chemistry I	3			
*CHMY	142	College Chemistry Laboratory I	1			
CHMY	143	College Chemistry II	3			
CHMY	144	College Chemistry Laboratory II	1			
CHMY	311	Analytical Chemistry – Quantitative Analysis	3			
СНМҮ	312	Analytical Chemistry Laboratory – Quantitative Analysis	1			
CHMY	321	Organic Chemistry I	3			
CHMY	322	Organic Chemistry Laboratory I	1			
CHMY	323	Organic Chemistry II	3			
CHMY	324	Organic Chemistry Laboratory II	1			
СНМҮ	371	Physical Chemistry – Quantum Chemistry and Spectroscopy	3			
CHMY	372	Physical Chemistry Laboratory I	1			
СНМҮ	373	Physical Chemistry – Kinetics and Thermodynamics	3			
CHMY	374	Physical Chemistry Laboratory II	1			
ВСН	380	Biochemistry	3			
ВСН	381	Biochemistry Lab	1			
CHMY	498	Internship/Cooperative Education	2			
Chemistry CHMY	Electives (	Chemistry Total Choose 9 credits from the following: Advanced Inorganic Chemistry	34			T
CHMY	401	Advanced Inorganic Chemistry  Advanced Inorganic Chemistry Laboratory	1			
			3			
CHMY	411	Advanced Organic Chemistry  Advanced Organic Chemistry laboratory	1			
CHMY	412	Advanced Organic Chemistry laboratory  Advanced Instrument Analysis	3			
CHMY	421	Advanced Instrument Analysis  Advanced Instrument Analysis Laboratory	2			
		• • •				
CHMY	490	Undergraduate Research	1-5			
CHMY	491	Special Topics	3			
BCH	480	Advanced Biochemistry I	3			
BCH	481	Advanced Biochemstry I Laboratory  Chamistry Floatives Totals	1			

**Mathematics Requirements** 

*M	171	Calculus I	4		
M	172	Calculus II	4		
*STAT	216	Introduction to Statistics	4		

#### Mathematics Total 12

**Physics Requirements** 

*ASTR	110	Introduction to Astronomy	3		
*ASTR	111	Introduction to Astronomy Lab	1		
PHSX	220	Physics I	3		
PHSX	221	Physics I Lab	1		
PHSX	232	Physics II and Thermodynamics	3		
PHSX	233	Physics II and Thermodynamics Lab	1		

Physics Total 12

Science Electives (4 credits selected with advisor approval)

<sup>\*</sup>May meet General Education requirements. Students should consult with an academic advisor before registering for courses in order to minimize the number of credits required for graduation.

## BACHELOR OF SCIENCE DEGREE IN CHEMISTRY - TEACHING LICENSURE OPTION

Categories General Education	Credits 31	Earned	Remaining
Professional Education Core	**31		
Chemistry Requirements	**31		
Chemistry Electives	9		
Mathematics Requirements	**9		
Physics Requirements	12		<del></del>
Science Electives	4		<del></del>
Total	127		

<sup>\*\*3</sup> credits that also satisfy General Education requirements are not included in the total number of credits. It is the student's responsibility to know and meet the requirements for graduation.

A minimum of 36 credits must be upper division classes (300 and above).

#### Notes:

<sup>^</sup> Course requires a completed Federal Criminal Background Check in order to complete the required practicum hours within the class. Packets may be picked up at either the Advising Center in McMullen Hall or in the College of Education, or can be printed off the website at <a href="http://www.msubillings.edu/coe/etp/FieldExper/FingerprintInfo.htm">http://www.msubillings.edu/coe/etp/FieldExper/FingerprintInfo.htm</a>. The background check is only valid for 24 months.